ISSN (print) 0093-4666 © 2011. Mycotaxon, Ltd. ISSN (online) 2154-8889

MYCOTAXON

http://dx.doi.org/10.5248/117.287

Volume 117, pp. 287–290 *July–September 2011*

Rhexodenticula zhengii sp. nov. from fallen leaves from China

De-Wei Li*[1], Jingyuan Chen[2] & Yixun Wang[2]

[1]*The Connecticut Agricultural Experiment Station, Valley Laboratory*
153 Cook Hill Road, Windsor, CT 06095
[2]*Institute of Forest Disease and Insect Control, Hubei Academy of Forestry*
1 Lion Peak, Jiufeng, Wuhan, Hubei, 430075, China
*Correspondence to—*dewei.li@ct.gov*

Abstract— A new species, *Rhexodenticula zhengii* from leaf litter of *Sycopsis sinensis* collected from Houhe National Nature Reserve, Wufeng, Hubei, China is described and illustrated with cymbiform conidia 18.5–22.0 × 4.5–5.0 µm, constricted at proximal and distal septa. A key to the species of *Rhexodenticula* is provided.

Key words— anamorphic fungi, rhexolytic secession, taxonomy

Introduction

Sycopsis sinensis is a native broadleaved evergreen woody plant species in China. It grows in mixed evergreen broadleaved forests or bushes and is sporadically distributed at elevations of 1000–2000 m in southern China (Li et al. 2003). However, the largest population of *S. sinensis* as the dominant species was reported in the Houhe National Nature Reserve by Liu et al. (1999).

A field trip was made to the Houhe National Nature Reserve (29°59′–30°10′N 110°22′–110°52′E) in Wufeng Tujia Autonomous County, Hubei, China to collect hyphomycetes in August 2008. A species of *Rhexodenticula* new to science was discovered on decaying leaves of *Sycopsis sinensis*.

Materials & methods

Conidiophores and conidia of the fungus were mounted in 85% lactic acid. Tape lifts were prepared for wet mounting using Mainstays Crystal Clear Tape (Imported by Walmart Canada, Mississauga, Ontario). Microscopic observations were made using bright field and Nomarski differential interference contrast optics. Photomicrographs were taken with an Olympus Microfire digital camera (Goleta, CA). Herbarium acronyms follow the Index Herbariorum (Holmgren & Holmgren 1998). Measurements of the fungal structures were statistically analyzed with Microsoft Office Excel 2007

with 95% confidence interval of means. The results were presented as ranges and mean ± standard deviation. Q is length/width ratio and n, the number of fungal structures measured.

Results

Rhexodenticula zhengii D.W. Li & Jing Y. Chen, **anam. sp. nov.** Figs 1–6

MycoBank MB 561153.

Conidiophora distincta, determinata vel percurrenter et sympodialiter proliferentia, erecta, solitaria vel fasciculata, non-ramosa, laevia, brunnea, 28–132(-205) × (3.5–)3.5–4.5(–4.5) µm, 1–9-septata. Cellulae conidiogenae polyblasticae, terminales, integratae, denticulatae. Conidia solitaria, obclavata, 3-septata, brunnea, verruculosa, (13.0–)18.5–22.0 × (4.0–)4.5–5.0(–5.5) µm ad basim margine, protrudente praedita. Teleomorphosis ignota.

Type: China. Hubei: Wufeng, Houhe National Nature Reserve, superficie in folio emortuo *Sycopsis sinensis* Oliv. (*Hamamelidaceae*) Coll. xxviii-viii-2008, De-Wei Li, [BPI 881495, **holotype**].

Etymology: in honor of Prof. Ruyong Zheng, a fellow of The Chinese Academy of Sciences, for her contributions to the systematics of powdery mildews and *Zygomycota.*

Conidiophores differentiated, single or in groups, determinate or with percurrent and sympodial extension, erect, unbranched, straight or flexuous, sometimes geniculate, , dark brown, smooth, 1–9-septate, varying in length, 30–135(–205) × (3.4–)3.5–4.5(–5) µm (mean = 79 ± 53, × 4 ± 0.5, n = 21), more or less uniform in width with enlarged subglobose basal cell and 0–3 nodes, thick-walled, wall 0.5–0.8 µm thick. Conidiogenous cells integrated, terminal, polyblastic, denticulate, (12.5–)16.5–30.0(–33.5) × (3.0–)3.5–4.0 (–4.5) (mean = 23.5 ± 6.5 × 3.7 ± 0.3, n = 20) µm; denticles (0.6–)0.8–1.2(–1.5) × 0.7–1.1(–1.5) (mean = 1 ± 0.2 × 0.9 ± 0.2, n = 17) µm. Conidia 3-septate, apical and lateral, single, obclavate, brown, verruculose, (13.0–)18.5–22.0 (mean = 20.1 ± 1.7, n = 30) × (4.0–)4.5–5.0(–5.5) (mean = 4.6 ± 0.3, n = 30) µm, Q = (4.0)4–5.0(5.5) (mean = 4.4 ± 0.4, n = 30), the middle cells darker and longer than the apical and basal cells, constricted at proximal septum and slightly constricted at distal septum, basal cell rounded with a narrow vestigial, marginal frill at the base derived from the rhexolytically split separating cell at the middle, the frill (0.5–)0.7–1.1(–1.2) × (0.8–)0.9–1.1(–1.3) (mean = 0.9 ± 0.2 × 1 ± 0.1, n = 30) µm.

Teleomorph: unknown.

Distribution and habitat: Known from Hubei, China on fallen leaves of *Sycopsis sinensis*.

Discussion

Rhexodenticula was established by Baker & Morgan-Jones (2001) and typified by *Rhexodenticula cylindrospora* (R.F. Castañeda et al.) W.A. Baker & Morgan-Jones. Segregation of *Rhexodenticula* from *Nakataea* was based on its key

Figs 1–6. *Rhexodenticula zhengii*. 1–2. Conidiophores and conidiogenous cells; arrows in 2 indicate separating cell walls. 3. Basal portions of conidiophores. 4–6. Conidia; the arrow in 5 indicates a separating cell wall. Scale bars: 1, 4–6 = 10 μm, 2–3 = 5 μm.

character of releasing conidia by rhexolytically splitting a separating cell. The genus previously had two species, *Rhexodenticula elegiae* Melnik et al. (Mel'nik et al. 2004) being the second. *Rhexodenticula zhengii* adds a third species. All three species have four-celled conidia. *Rhexodenticula cylindrospora* has cylindrical conidia with four cells of equal length (Castañeda et al. 1996, Baker et al. 2001), while conidia of *R. elegiae* and *R. zhengii* are much shorter with paler end cells. The conidia of *R. zhengii* are obclavate, larger, and constricted at basal and distal septa: these characters can differentiate it from *R. elegiae*, which has fusiform conidia with unconstricted septa.

Key to species of *Rhexodenticula*

1. Conidia cylindrical, 13–21 × 4–5 µm ..... *R. cylindrospora*
1a. Conidia obclavate or fusiform 2
2. Conidia constricted at proximal and distal septa, obclavate, 18.5–22 × 4.5–5 µm ..... *R. zhengii*
2a. Conidia not constricted at septa, fusiform, 16–19 × 5 µm ..... *R. elegiae*

Acknowledgments

The authors express their sincere gratitude to Dr. Bryce Kendrick and Dr. Rafael F. Castañeda Ruiz for their critical review of the manuscript and to Dr. James A. LaMondia for his pre-submission review. The authors are grateful to the Connecticut Agricultural Experiment Station for supporting the collaboration. Financial support by the Resources Sharing Platform of Natural Sciences and Technology, China (2005DKA2120715) to JYC is acknowledged. The authors also thank Dengkui Tang, Zhizhang Zheng, Yeqing Wang, Sanshan Cai, and Jihong Yang for their assistance. Dr. Lorelei L. Norvell's editorial review and Dr. Shaun Pennycook's nomenclature review are greatly appreciated.

Literature cited

Baker WA, Partridge EC, Morgan-Jones G. 2001. Notes on hyphomycetes. LXXXIV. *Pseudotrichoconis* and *Rhexodenticula*, two new monotypic genera with rhexolytically disarticulating conidial separating cells. Mycotaxon 79: 361–373.

Castañeda Ruíz RF, Saikawa M, Hennebert GL. 1996. Some new conidial fungi from Cuba. Mycotaxon 59: 453–450.

Holmgren PK, Holmgren NH. 1998. [continuously updated]. Index Herbariorum: A global directory of public herbaria and associated staff. New York Botanical Garden's Virtual Herbarium. http://sweetgum.nybg.org/ih/

Li X., Hu LL, Huang HD, Jiang MX. 2003. Structures and spatial distribution patterns of dominant populations in *Sycopsis sinensis* community in Houhe Nature Reserve. J. App1. Ecol. 14(6): 849–852.

Liu SX, Xu KY, Yang F-S. 1999. The biggest community *Sycopsis sinensis* was found in Houhe Nature Reserve, Hubei Province, China. J Huazhong Nor Univ (Nat Sci) 33(4): 588–589.

Mel'nik V, Lee S, Groenewald JZ, Crous PW. 2004. New hyphomycetes from *Restionaceae* in fynbos: *Parasarcopodium ceratocaryi* gen. et sp. nov., and *Rhexodenticula elegiae* sp. nov. Mycological Progress 3(1): 19–28. http://dx.doi.org/10.1007/s11557-006-0072-1